



On the Radar

August 26th, 2016



Status by Crop

- Corn: mid to late R5
- Soybean: R6
- Potato (full season): Lots of fields maturing prior to vine kill, some fields dug green, most fields to be vine killed soon.
- Potato (short season): **2" tubers to harvested.**
- Carrot: Still about 2-5% harvested.
- Onion: laying down to lifted
- Tomatoes: Mid-harvest
- Pumpkins: Beginning to ripen

Corn Earworm



Corn earworm is a serious pest on sweet corn. Thresholds are very low and are based on the moths caught in traps – not the larvae.

The color of the larvae can vary greatly but one diagnostic character is that they remain at the tip of the ear.

Mysterious Symptom on Potato



A particular field shows a mysterious illness every time potatoes are planted in it.

The affected areas appear much darker than normal.

The growing points of individual plants are the most affected and the stems & petioles are extremely brittle.

Leaflets are dark and shiny, twisted, stunted, mostly cupped downward, and *rugose*.

Rugose : wrinkled or "rough" and typically thickened.

Possible Causes and Accompanying Arguments

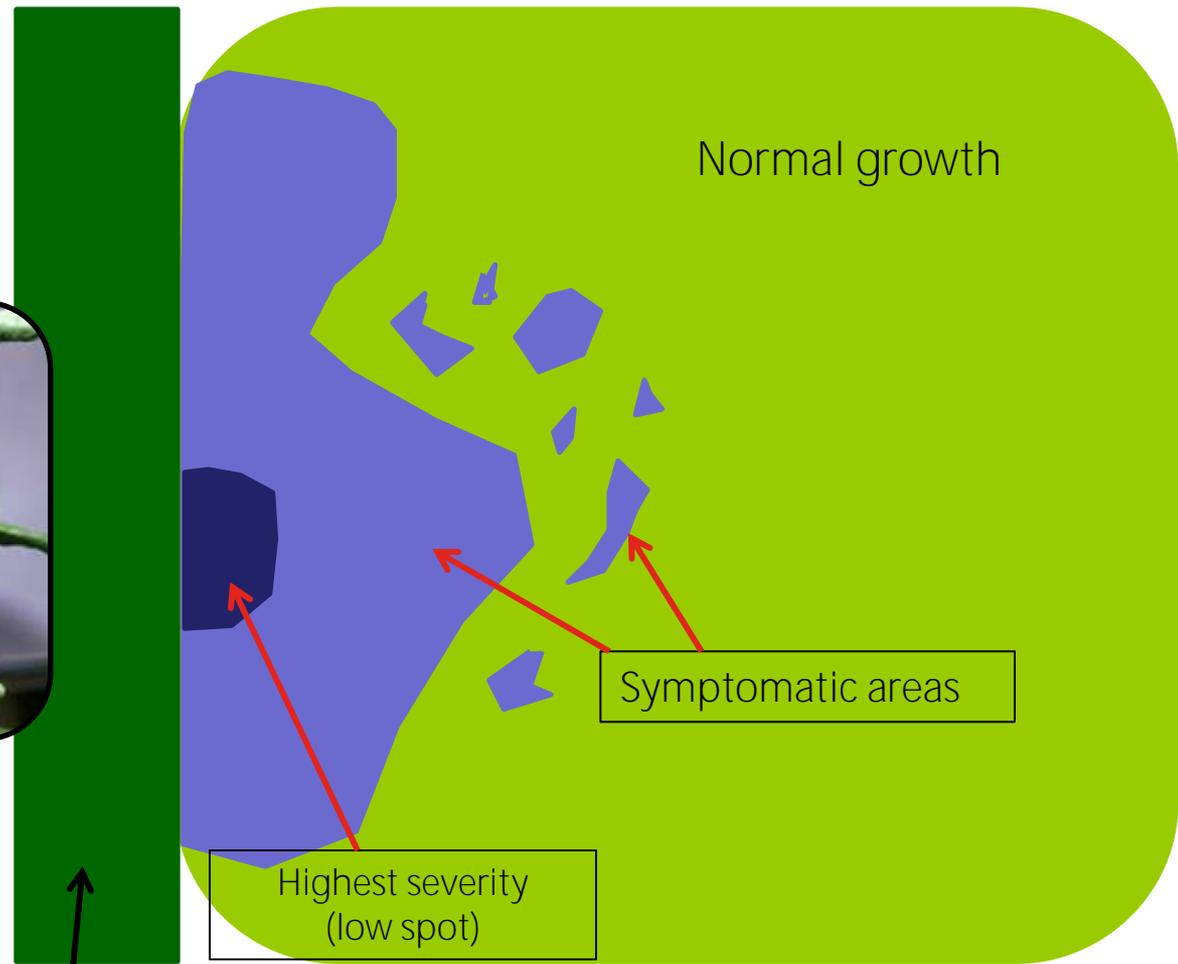
- Virus
 - Growing point most affected (common to viral diseases)
 - Rugosity, cupping, twisting, and stunting are all very common viral symptoms.
- Nutrient deficiency or allelopathy
 - Resembles some descriptions of mild Phosphorous deficiency symptoms in potatoes.
 - Resembles descriptions of various micronutrient deficiencies on other **plants (variety variation, micro deficiencies' propensity for myriad unusual expression)**
 - Maybe an unusual interaction with compounds left in the soil by alfalfa or rye?
- Herbicide carryover **from last year's crop** *or* could this be an expression of herbicide exposure to the seed piece last year?

What other critical information do we need?

Mysterious Potato Symptom Field Distribution



Symptomatic milkweed
observed in the ditch



Thick tree line

Highest severity
(low spot)

Symptomatic areas

Normal growth

Given this distribution, can you make stronger arguments for or against a suspected cause?

Take-aways from the field distribution

Symptom severity is fairly well correlated with field topography

Appears to be emanating from the tree line or the adjacent field

Supports nutrient deficiency argument

Supports notion of a virus vectored by an insect or mite with sucking mouthparts

Pull soil sample

Pull tissue sample

"Good"

"Bad"

"Good"

"Bad"

Look for the insect or mite vector

The Culprit

It took a while but I finally looked closer at the underside of the leaves – whereupon the frass and discoloration typical of a mite was observed.

Using a high powered handlens, a very tiny mite was observed at a very low population level on the symptomatic potatoes and the milkweed. It was less than half the size of a thrip and essentially invisible to the naked eye and even difficult to see with a 30x handlens.

Luckily I had a 60x handlens, with which the mouthparts typical of a mite were observed.

After searching around the literature, the identity of the organism was determined to be a tarsonemid mite. A virus was not the cause.



Tarsonemid Mite (probably Broad Mite)



Pest of a diverse range of plants.

The viral-like symptoms – caused by their toxic saliva – stick around even if the mite is eliminated.

Seems to be predominantly a pest in greenhouses, where it can easily cause complete crop loss if the infestation is not eradicated.

For more information, click [here](#).

Spider Mites on Cucurbits



Spider mites are becoming more and more common on a wide range of crops.



Goodbye!



(This is the last one for the season)